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| 10/613,719      | 07/03/2003  | Daniel M. Ginosar    | B-113               | 4964             |

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03/15/2007

EXAMINER

JOHNSON, EDWARD M

ART UNIT

PAPER NUMBER

1754

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE  | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS                               | 03/15/2007 | PAPER         |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/613,719

Applicant(s)

GINOSAR ET AL.

Examiner

Edward M. Johnson

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 and 38-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 and 38-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 1754

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-31 and 38-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper 5,326,923 in view of Seapan et al., American Chemical Society publication.

Regarding claims 1 and 38, Cooper '923 discloses a method for regenerating catalysts comprising contacting the catalyst with a solvent to remove some portion of the reaction product residue adhering to the solid catalyst to recover the catalyst's initial activity (see abstract). Cooper further discloses the recycling the solvent as appropriate (see column 10, lines 27-28), which an ordinary artisan would remove the fouling agent to perform. Cooper '923 further discloses isobutylene (see column 9, line 35), isobutane (see column 9, lines 41-43 and 56-57) and benzene (see column 3, lines 64-65; column 5, lines 1-3; and

Art Unit: 1754

column 10, lines 61-63), which would be capable of transferring a hydride ion.

Cooper '923 fails to disclose reaction with at least some of the impurities.

Seapan discloses treatment with supercritical reactive and strong solvents (see page 81, last full paragraph).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the reaction of Seapan in the regeneration process of Cooper because Cooper refers to Seapan's disclosure of supercritical SO<sub>2</sub> to remove impurities (see Cooper's "Other Publications", and column 5, lines 56-66) and Cooper discloses his treatment with supercritical reactive and strong solvents to break down macromolecular structure (see page 81, last full paragraph).

Regarding claim 2, Cooper '923 discloses hydrocarbon conversion including alkylation (abstract).

Regarding claim 3, Cooper '923 discloses acidic functionality (see column 6, lines 33-34).

Regarding claim 4, Cooper '923 discloses isobutylene (see column 9, line 35).

Regarding claims 5 and 39, Cooper '923 discloses contacting the catalyst with a solvent to remove some portion of the

Art Unit: 1754

reaction product residue adhering to the solid catalyst to recover the catalyst's initial activity (see abstract).

Regarding claims 6, 11, 21, 40-42, Cooper '923 discloses periodically introducing hydrogen (see column 5, lines 14-17) and purging the system (see Example 1), which would obviously, to one of ordinary skill, at least suggest pumping and reactivating outside the alkylation reactor and recycling after purification so as to separate the catalyst from the system in accordance with the disclosed purging.

Regarding claims 7-9, 18, Cooper '923 discloses isobutane and 750 psig (see column 9, lines 41-43 and 56-57).

Regarding claim 10, Cooper '923 discloses contacting catalyst with benzene (see column 3, lines 64-65; column 5, lines 1-3; and column 10, lines 61-63).

Regarding claims 12-17, 19, 20, 22-23, 26-31, and 43-44, Seapan discloses treatment with supercritical reactive and strong solvents (see page 81, last full paragraph), which would motivate an ordinary artisan to use an optimum critical temperature and pressure determined through routine experimentation.

Regarding claim 22, Cooper '923 discloses the recycling the solvent as appropriate (see column 10, lines 27-28), which an ordinary artisan would remove the fouling agent to perform, and

Art Unit: 1754

it would have been obvious to an ordinary artisan that a hydride ion has a lower molecular weight than the disclosed solvents of Cooper.

Regarding claims 24-25, Cooper '923 discloses zeolites and alumina (see abstract and background).

***Response to Arguments***

3. Applicant's arguments filed 8/21/06 have been fully considered but they are not persuasive.

It is argued that the cited references do not teach or suggest the limitation of "contacting the catalyst... at least one fouling agent." This is not persuasive because Cooper discloses contacting catalyst with benzene (see column 3, lines 64-65; column 5, lines 1-3; and column 10, lines 61-63) and isobutylene (see column 9, line 35). Further, the Examiner's position was not that hydrogen is hydride ion, as Applicant appears to suggest, since Applicant claims an agent "capable of" transferring a hydride ion, and not an agent comprising a hydride ion.

It is argued that contrary to the Examiner's assertion, Cooper... "recycling the fluid reactivated agent." This is not persuasive because Applicant appears to admit that Lewis acids are recycled, and also because Cooper '923 discloses a method for regenerating catalysts comprising contacting the catalyst

Art Unit: 1754

with a solvent to remove some portion of the reaction product residue adhering to the solid catalyst to recover the catalyst's initial activity (see abstract) and Seapan discloses treatment with supercritical reactive and strong solvents (see page 81, last full paragraph).

It is argued that the cited references also do not provide a motivation... the claimed invention. This is not persuasive because the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the reaction of Seapan in the regeneration process of Cooper because Cooper refers to Seapan's disclosure of supercritical SO<sub>2</sub> to remove impurities (see Cooper's "Other Publications", and column 5, lines 56-66) and Cooper discloses his treatment with supercritical reactive and strong solvents to break down macromolecular structure (see page 81, last full paragraph).

Art Unit: 1754

It is argued that however, Cooper's reference to Seapan does not suggest... the claimed invention. This is not persuasive for the reasons above, and also because Applicant appears to further admit that it is "known in the art that solvents have different properties at noncritical conditions versus critical conditions". Thus, it would have been further obvious to an ordinarily skilled artisan to use either condition depending on the properties desired.

It is argued that furthermore, even if Cooper and Seapan were combined... capable of transferring a hydride ion. This is not persuasive because Copper discloses contacting catalyst with benzene (see column 3, lines 64-65; column 5, lines 1-3; and column 10, lines 61-63) and isobutylene (see column 9, line 35).

It is argued that claim 7 is further allowable because... on tertiary carbon atom. This is not persuasive because Applicant appears to admit that contact with isobutane is disclosed. Thus, it would have been obvious to one of ordinary skill to acceptably contact with isobutane as reactivating agent. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art (contacting with isobutane) cannot be the basis for patentability when the differences would otherwise be obvious.



Art Unit: 1754

See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

It is argued that claim 22 is further allowable... at least one fouling agent. This is not persuasive because Cooper '923 discloses the recycling the solvent as appropriate (see column 10, lines 27-28), which an ordinary artisan would remove the fouling agent to perform, and it would have been obvious to an ordinary artisan that a hydride ion has a lower molecular weight than the disclosed solvents of Cooper.

#### **Conclusion**

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated

Art Unit: 1754

from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward M. Johnson whose telephone number is 571-272-1352. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or

Application/Control Number: 10/613,719

Page 10

Art Unit: 1754

access to the automated information system, call 800-786-9199

(IN USA OR CANADA) or 571-272-1000.



Edward M. Johnson  
Primary Examiner  
Art Unit 1754

EMJ